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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/629,972	07/30/2003	Robert W. Hulvey	BP2483	9524
34399	7590	11/01/2005	EXAMINER	
GARLICK HARRISON & MARKISON LLP			CASIANO, ANGEL L	
P.O. BOX 160727			ART UNIT	
AUSTIN, TX 78716-0727			PAPER NUMBER	
			2182	

DATE MAILED: 11/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/629,972	HULVEY, ROBERT W.	
	Examiner	Art Unit	
	Angel L. Casiano	2182	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-7,10-13 and 16-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-7,10-13,16 and 20 is/are rejected.
- 7) ☒ Claim(s) 17-19 and 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 8/12/5 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>20050812</u> . | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment

The present Office action is in response to Amendment dated 12 August 2005.

Claims 1, 4-7, 10-13, and 16-21 are pending.

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 12 August 2005 was filed after the mailing date of the Office action on 12 May 2005. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

2. Previous Objections to the Drawings have been overcome in view of the present Amendment.

Specification

3. Previous Objection to the Title has been overcome in view of the present Amendment.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Previous Rejections under 35 U.S.C. § 112, second paragraph have been overcome in view of the present Amendment.

6. Claim 10 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. This claim depends upon claim 9, which has been canceled according to the present Amendment. For the purposes of this Office action, the Examiner will consider claim 10 as dependent upon claim 7.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 1, 5-7, 11-13, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang et al. [US 6,304,250 B1] in view of Johnston, Jr. et al. [US 5,880,729].

Regarding claim 1, Yang et al. teaches a **wireless interface device** that services communications between a wirelessly enabled **host** and **user input device** (Figures 1-3). The reference includes a user input device comprising a **matrix** (see col. 2, lines 33; Figure 8; col. 7, line 32); a wireless interface unit that **wirelessly interfaces** with the wirelessly enabled host (see col. 7, line 37); a processing unit operably coupled to the wireless interface unit; an input/output unit operably coupled to the wireless interface unit and to the processing unit (see Figure 8), wherein the input/output unit also operably couples to the user input device; and a **keyboard scanning circuit** (see col. 10, lines 1-7) operably coupled to said input/output device to scan the rows and columns of said user input device, wherein: said scanning circuit **detects operation of a key** (see “key is depressed” col. 10, lines 14-17) associated with said user device by detecting a transition in the **voltage level** (see col. 11, lines 12-17) of at least one row in said switch matrix from a first **state** to a second state (see “low level”, col. 11, line 13). When a key is struck, a function signal is generated and **at the same time** a corresponding LED is enabled and turned on (changes in state) (see col. 5, lines 14-16).

However, Yang et al. does not explicitly teach “forcing back” to a first state, “thereby decreasing the scanning interval for detecting row transitions”, as claimed. Regarding this aspect, Johnston teaches an input device, which transitions from a first to a second state (see col. 5, lines 1-5) and then returns to the first (“original”) state. At the time of the invention, one of ordinary skill in the art would have been motivated to combine the cited disclosures in order to obtain a system for animation control in graphic user interfaces using input devices, as taught by Johnston (see Abstract).

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As for claim 5, Yang et al. teaches an I/O **signal** upon detection of pressing a key (see col. 11, lines 6-16).

As for claim 6, the reference teaches an activation signal causing the device to change **state** (see col. 11, lines 12-17).

Regarding claim 7, Yang et al. teaches a **method** (see col. 13, line 59), including a **user input device** comprising a **matrix** (see col. 2, lines 33; Figure 8; col. 7, line 32); a wireless interface unit that wirelessly interfaces with the wirelessly enabled host (see col. 7, line 37); a processing unit operably coupled to the wireless interface unit; an input/output unit operably coupled to the wireless interface unit and to the processing unit (see Figure 8), wherein the input/output unit also operably couples to the user input device. The reference teaches a keyboard scanning circuit (see col. 10, lines 1-7) operably coupled to the input/output device to scan the rows and columns of said user input device. The reference **applies** control signals to the matrix (see col. 2, lines 29-41). The keyboard circuit **detects** operation of a key (see “key is depressed” col. 10, lines 14-17) associated with said user device by detecting a transition in the **voltage level** (see col. 11, lines 12-17) of at least one row in said switch matrix from a first state to a second state (see “low level”, col. 11, line 13). When a key is struck, a function signal is **generated** and at the same time a corresponding LED is enabled and turned on (**transition in state**) (see col. 5, lines 14-16).

Yang et al. does not explicitly teach “forcing back” to a first state, “thereby decreasing the scanning interval for detecting row transitions”, as claimed. Regarding this aspect, Johnston teaches an input device, which transitions from a first to a second state (see col. 5, lines 1-5) and

then returns to the first (“original”) state. At the time of the invention, one of ordinary skill in the art would have been motivated to combine the cited disclosures for the reasons stated above.

As for claim 11, Yang et al. teaches an I/O **signal** upon detection of pressing a key (see col. 11, lines 6-16).

As for claim 12, the reference teaches a signal causing the device to change **state** (see col. 11, lines 12-17).

Regarding claim 13, Yang et al. teaches a **system** (see col. 12, line 38) for communications between a host and a user input device (see Figure 3). The reference includes a **wireless interface unit** that services communications between a wirelessly enabled **host** and **user input device** (Figures 1-3). Yang et al. also teaches power management for controlling the **power consumption** (see col. 1, lines 23-25; col. 6, lines 4-6) of the system. The reference includes a user input device comprising a **matrix** (see col. 2, lines 33; Figure 8; col. 7, line 32); a wireless interface unit that **wirelessly interfaces** with the wirelessly enabled host (see col. 7, line 37); a processing unit operably coupled to the wireless interface unit; an input/output unit operably coupled to the wireless interface unit and to the processing unit (see Figure 8), wherein the input/output unit also operably couples to the user input device; and a **keyboard scanning circuit** (see col. 10, lines 1-7) operably coupled to said input/output device to scan the rows and columns of said user input device, wherein: said scanning circuit **detects operation of a key** (see “key is depressed” col. 10, lines 14-17) associated with said user device by detecting a transition

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in the **voltage level** (see col. 11, lines 12-17) of at least one row in said switch matrix from a first state to a second state (see “low level”, col. 11, line 13). When a key is struck, a function signal is generated and **at the same time** a corresponding LED is enabled and turned on (changes in state) (see col. 5, lines 14-16).

Yang et al. does not explicitly teach “forcing back” to a first state, “thereby decreasing the scanning interval for detecting row transitions”, as claimed. Regarding this aspect, Johnston teaches an input device, which transitions from a first to a second state (see col. 5, lines 1-5) and then returns to the first (“original”) state. At the time of the invention, one of ordinary skill in the art would have been motivated to combine the cited disclosures for the reasons stated above.

As per claim 20, Yang et al. teaches an I/O **signal** upon detection of pressing a key (see col. 11, lines 6-16).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 4, 10, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang et al. [US 6,304,250 B1] in view of Johnston, Jr. et al. [US 5,880,729], in further view of Vidales [US 6,178,527 B1].

As for claim 4, the combination of references fails to explicitly teach resolving an ambiguity and identifying activation of switches. Regarding this limitation, Vidales teaches a comparator and microcontroller (see col. 6, line 27 and line 34). The microcontroller generates and stores a message including the code of the keycode set used for communicating keystrokes (see col. 6, lines 34-37). A transmitter, responsive to the microcontroller transmits signals representing the input and diagnostics. This includes a LED (see col. 6, line 41). Therefore, it would have been obvious to one of ordinary skill in the art at the time that the combination of references unambiguously identified a state corresponding to the activation, as presented by the LED.

As for claim 10, the combination of references fails to disclose the step of resolving an ambiguity and identifying activation of switches. Vidales teaches a comparator and microcontroller (see col. 6, line 27 and line 34). The microcontroller generates and stores a message including the code of the keycode set used for communicating keystrokes (see col. 6, lines 34-37). A transmitter, responsive to the microcontroller transmits signals representing the input and diagnostics. This includes a LED (see col. 6, line 41). Therefore, it would have been obvious to one of ordinary skill in the art at the time that the method resulting from modifying the combination of reference unambiguously identified a state corresponding to the activation, as presented by the LED.

As for claim 16, this corresponds to the system for implementing the method disclosed and previously rejected. Accordingly, the present claim is rejected under the same rationale.

Allowable Subject Matter

12. Claims 17-19 and 21 were previously objected to as being dependent upon a rejected base claim, but these would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

13. Applicant's arguments, see Amendment dated 12 August 2005 with respect to the rejection(s) of the claims under Yang et al. have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Johnston et al.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- **Falik et al.** [US 20020175835 A1] teaches in the Abstract, "An apparatus and method is disclosed for providing a fast, low power consumption, detection of at least one depressed key in a resistive matrix keyboard. The common contact of each row of a resistive matrix is connected to a first input of each of a plurality of analog/digital comparators capable of switching between high and low voltage states. A common predetermined reference voltage is applied to a second input of each analog/digital comparator using a digital to analog converter. The output of a analog/digital comparator is in a first state if the voltage level applied to the first input is higher than

the reference voltage, and in a second state if the voltage level applied to the first input is lower than the reference voltage. The reference voltage is varied to identify which analog/digital comparator has experienced a change of state” (emphasis added).

- **Matsuoka** [US 4599608 A] teaches “A keyboard circuit including a multiplicity of switches disposed in a matrix connected to associated row lines and column lines, first means for scanning one of the row lines or column lines and establishing a predetermined voltage on the one scanned line, second means for detecting said predetermined voltage from the other one of the scanned row lines or column lines, and recognition means for recognizing the address of an on-state switch from the line addresses of the scanned line in said first means and of the detected line in said second means when the predetermined voltage is detected by said second means” (emphasis added).
- **Ito et al.** [US 5220323 A] teaches “A keyboard apparatus includes a key matrix having key switches disposed at intersections between rows and columns forming a matrix and a control unit for selecting a row and a column of the key matrix to sense a state of a key switch disposed at an intersection of the selected row and the selected column of the key matrix. The apparatus includes a first confirmation unit for sensing, in a first period of time, a key switch state of the key matrix to confirm whether or not two or more depressed keys exist on a row of the key matrix and a second confirmation unit for sensing again, in a second period of time, a key switch state of the key matrix such that when two or more depressed keys exist on a column

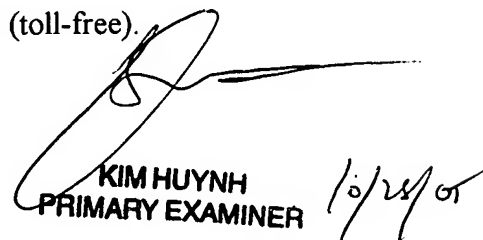
of the key matrix, a confirmation is made to determine whether or not two or more depressed keys exist on the row on which the key depression is found in the key matrix" (emphasis added).

- **Hsu** [US 6417787 B1] teaches "An apparatus and a method for increasing the number of keys in a ready made key-matrix, it is necessary to increase some extra diodes and change the keyboard scanning method. To increase some extra keys in the key-matrix, the diodes are in series with the keys, and the keyboard scanning method is executed by detecting the conductive direction of the diodes. The method avoids redesigning any IC to increase I/O ports, therefore, it can save the cost of redesigning and advance the sale" (emphasis added).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angel L. Casiano whose telephone number is 571-272-4142. The examiner can normally be reached on 9:00-5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Huynh can be reached on 571-272-4147. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


KIM HUYNH
PRIMARY EXAMINER 10/24/05